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(54) Automatic bit-rate detection scheme for a sonet transceiver

(57) An automatic bit-rate detection scheme (30) for use in SONET/SDH transceivers (12, 14) that uses only one clocking frequency (clk), is all digital, and requires less than 250 microseconds to detect a new data bit-rate. The present invention analyzes events that are guaranteed to be present in all SONET data streams. A1 and A2 framing bytes (22,24) occur at 125 microseconds intervals in all SONET signals. The bit transitions in the framing bytes represent the minimum transition intervals of the received data. The present invention examines this bit interval to determine the operating frequency of the received data. A set of combinational logic circuits (70, 80, 90) are used to detect specific data bit patterns which appear in the A1 and A2 SONET framing bytes, such as "010" and "101". The combinational circuit looks for specific patterns of data bits occurring at a specific communication rate. Latches (76, 86, 96) capture the pulses that are generated by the combinational circuits each time that the particular bit pattern is detected. After sufficient time is passed, the output of the capturing latches indicates which data rates have been detected and logic determines the received data bit-rate, (52, 100). A multi-rate chip is then responsively set to communicate at the highest rate detected. The data can be shifted in serially or in parallel.

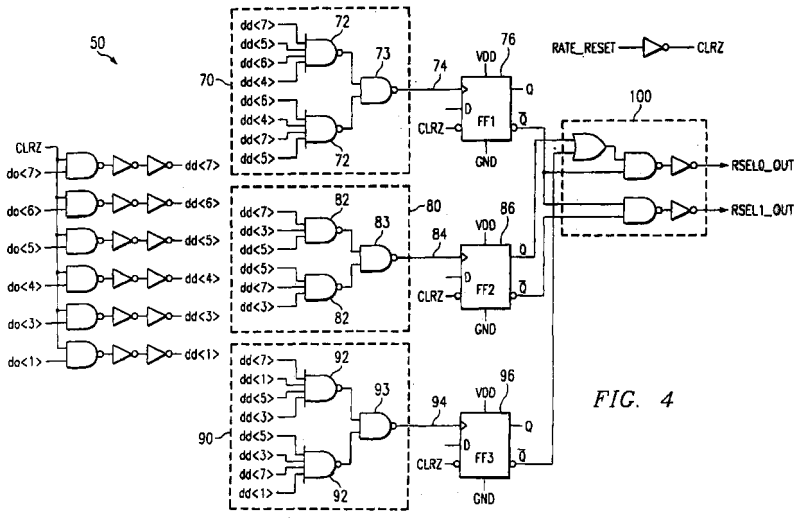

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 01 00 0575

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
D,X	CHRISTOPH SCHEYTT ET AL: "A 0.155-, 0.622-, and 2.488-Gb/s Automatic Bit-Rate Selecting Clock and Data Recovery IC for Bit-Rate Transparent SDH Systems" IEEE JOURNAL OF SOLID-STATE CIRCUITS, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 34, no. 12, December 1999 (1999-12), XP011061148 ISSN: 0018-9200 * paragraph [IIB.]; figure 4 *	1-7,12, 16-25	INV. H04L25/02 H04J3/06 H04L7/04
A	EP 0 397 142 A (ALCATEL NV [NL]) 14 November 1990 (1990-11-14) * column 4, line 48 - column 5, line 56 * * column 6, line 8 - column 8, line 45 * * figures 3,4 *	1,3,4, 13-17, 19-21, 23,26,27	

TECHNICAL FIELDS SEARCHED (IPC)

H04L
H04J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	22 June 2007	Masche, Christian

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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T : theory or principle underlying the invention
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22-06-2007

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82